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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,011	04/07/2006	Graeme Moad	PIP15-22778/CGM 522/A/PCT	1662
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EXAMINER				
LET, RIP A				
ART UNIT		PAPER NUMBER		
1796				
MAIL DATE		DELIVERY MODE		
08/13/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/533,011

## Applicant(s)

MOAD ET AL.

## Examiner

RIP A. LEE

## Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 4, 8-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4, 8-18 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S5108)  
Paper No(s)/Mail Date 02-05-2008
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This office action follows a response filed on May 9, 2008. Claims 1, 8, 13, 14, 17, and 18 were amended. Claims 2, 5-7, and 19 were canceled, and new claim 20 was added. Claims 1, 3, 4, 8-18, and 20 are pending.

#### ***Claim Rejections - 35 USC § 112***

1. Claims 1, 3, 4, 8-18, and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Instant claims are drawn to a polyolefin nanocomposite comprising filler where said filler is not an organically modified clay. The disclosure describes adequately, organically modified clays, however, the specification is devoid of teaching that use of organically modified clay is necessarily excluded from the invention. Based on these considerations, it is deemed that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. See MPEP § 2173.05(i); *Ex Parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 738 F.2d 453 (Fed. Cir. 1984). Any claim containing a negative limitation which does not have basis in the original disclosure are rejected under 35 U.S.C. 112, first paragraph for failing to comply with the written description requirement.

***Claim Rejections - 35 USC § 102 / 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 3, 4, 8-14, and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Rosenthal *et al.* (U.S. 6,864,308).

Rosenthal *et al.* teaches a process of melt blending a mixture of polyolefin, a smectite clay, and an intercalating agent such as sorbitan monostearate or sorbitan tristearate (col. 2, lines 57-67, examples 2-4, claims). Stabilizer is also added to the mixture during melt blending (table 1). Smectite clays include montmorillonite, beidellite, hectorite, saponite, sauconite, stevensite, and volkonskoite (col. 2, lines 27-30), and the smectite clay can be untreated (col. 2, line 33). The polyolefin is polyethylene, propylene, and copolymers thereof (col. 2, lines 17-25). The ratio of intercalating agent to smectite clay is at least 1:3 (col. 3, line 5). Working examples disclose compositions containing 3 wt % of filler and 1 wt % of intercalating agent. Temperature of melt mixing depends on the melting temperature of the polyolefin; examples show a representative polypropylene composite melt mixed at a barrel temperature of 190 °C (col. 4, line 27), and comparable polyolefins will have melt temperature well within the claimed range of 120-290 °C. Conventional additives such as hindered amine light stabilizer are included (col. 4, line 45). Molded articles prepared from inventive compositions are disclosed in column 3, lines 45-50; compositions are especially useful for fabrication of extruded film (col. 4, line 1).

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenthal *et al.* in view of Sun (U.S. 5,912,292).

The discussion of the disclosures of the prior art from the previous paragraph of this office action is incorporated here by reference. Rosenthal *et al.* does not disclose use of nucleating agent for making extruded film. However, at the time the instant invention was made, this practice was well-established in the art. Sun teaches benefits of using nucleating agent for preparation of polyolefin film. Nucleating agent allows the polymer to crystallize at a higher temperature during processing (col. 1, lines 58-60). This leads to rapid formation of product due

to shorter cycling time for making extruded articles. Moreover, nucleating agent is used to improve clarity and reduce shrinkage of polypropylene film (col. 2, line 7 and 33). The nucleating agent of choice is sodium benzoate, and it may be present in amounts up to 1000 ppm (0.1 wt %); see claim 1. The combination of references would have suggested to one of ordinary skill in the art that properties of film prepared with composition of Rosenthal *et al.* would be improved by incorporation of nucleating agent, as taught in Sun. Therefore, it would have been obvious to one having ordinary skill in the art to use nucleating agent in the composition of Rosenthal *et al.* in order to make of film with reduced shrinkage and high clarity. Since this practice is taught in Sun, one of ordinary skill in the art would have expected the combination of teachings to work with a high degree of success.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenthal *et al.* in view of Mehta *et al.* (U.S. 6,844,389).

Rosenthal *et al.* is silent with respect to compounding from a concentrate or masterbatch. However, at the time the invention was made, use of concentrates, or masterbatches, was known to those having skill in the extrusion art. For instance, Mehta *et al.* discloses preparing polyolefin-clay nanocomposites in which the clay filler is let down into the polymer matrix by use of a concentrate. As appreciated in the art, use of concentrates allows for more effective incorporation of compounding ingredients into a polymer matrix, and it minimizes the number of materials that must be stored and handled by processors. Typical concentrates contain 20-60 wt % of clay and other processing additives (col. 7, line 61 - col. 8, line 26). The disclosure of Mehta *et al.* would have suggested to one having skill in the art that compositions of Rosenthal *et al.* may be prepared more conveniently using the masterbatch technique, and therefore, it would have been obvious to one having ordinary skill in the art to make compositions of Rosenthal *et al.* via a masterbatch, as prescribed in Mehta *et al.* Since this is process is well-established in the art, one having ordinary skill in the art would have expected such a combination to work with a reasonable expectation of success.

***Response to Arguments***

6. The rejections of claims based on Dontula *et al.* (U.S. 6,841,226), set forth in paragraphs 8-10 in the previous office action dated December 7, 2007, have been overcome by amendment. The reference does not disclose the claimed non-ionic surfactants.

The rejection of claims over Whitehouse *et al.* (U.S. 6,268,407) has been overcome by amendment.

The rejections of claims over Rosenthal *et al.* (U.S. 6,864,308) alone and in combination with Mehta *et al.* (U.S. 6,844,389), have been withdrawn; new grounds of rejection based on these references have been presented in this office action. Attention is drawn column 2, line 33 of Rosenthal *et al.*, which teaches use of untreated smectite clay.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu S. Jagannathan, can be reached at (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/Rip A. Lee/  
Art Unit 1796

August 8, 2008

/VASUDEVAN S. JAGANNATHAN/  
Supervisory Patent Examiner, Art Unit 1796